Mumbai University

QUESTION PAPER

April – 2016

[B.Sc.IT – SEMESTER: VI]
(CBSGS – 75:25 PATTERN)

- ❖ **INTERNET TECHNOLOGIES**
- ❖ **DATA WAREHOUSING**
- ❖ **IPR AND CYBER LAWS**
- ❖ **PROJECT MANAGEMENT**
- ❖ **GEOGRAPHIC INFORMATION SYSTEMS**

KAMAL T UNIVERSE

Mumbai University

[CBSGS – 75:25 Pattern]
(April – 2016)

PAPER - I

INTERNET TECHNOLOGIES

Time: 2 ½ Hours   **Total Marks:** 75

N.B.: (1) *All Question are Compulsory.*
    (2) *Make Suitable Assumptions Wherever Necessary And State The Assumptions Made.*
    (3) *Answer To The Same Question Must Be Written Together.*
    (4) *Number To The Right Indicates Marks.*
    (5) *Draw Neat Labeled Diagrams Wherever Necessary.*
    (6) *Use of Non – Programmable Calculator is allowed.*

Q.1   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   Why do you need Subnetting in Classfull Addressing? Explain.   (5)
(B)   Why do you need to Fragment an IP Datagram? Explain the Fields related to it.   (5)
(C)   Explain the concept of IP over ATM.   (5)
(D)   Explain the Extension Headers in IPv6.   (5)

Q.2   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   Explain packet format of ATMARP.   (5)
(B)   List the Error Reporting Message of ICMP. Explain any one of them with the Format.   (5)
(C)   What is an Insufficiency in Mobile IP? Explain with a solution.   (5)
(D)   How Bellman-Ford Algorithm help to find the least cost between two Nodes? Explain.   (5)

Q.3   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   Explain the details of UDP Packages.   (5)
(B)   What is need of Queues in UDP? Explain.   (5)
(C)   Explain NUMBERING system use in TCP.   (5)
(D)   Explain Half-Close of TCP.   (5)

Q.4   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   Explain format of DATA Chunk and INIT Chunk.   (5)
(B)   How do you establish an association in SCTP? Explain.   (5)
(C)   Draw and explain DHCP Packet Format.   (5)
(D)   Explain types of Records in DNS.   (5)

Q.5   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   Write a note on NVT.   (5)
(B)   Explain in details component of SSH.   (5)
(C)   Which are two approaches that FTP Client and Server uses to communicate with each other?   (5)
(D)   Explain Persistence and Non-Persistence Connection in HTTP.   (5)

Q.6   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   Explain the Phases of Email Transfer.   (5)
(B)   What are the roles of Message Access Agent? How does POP3 works?   (5)
(C)   What are the concepts of MIME? Explain its Format.   (5)
(D)   How do you Compress an Audio? Explain.   (5)

[TURN OVER]

Q.7 **ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

(A)	Compare IPv4 and IPv6.	**(5)**
(B)	What are types of Links in OSPF? Explain each in details.	**(5)**
(C)	What are options available in TCP? Explain each with its Packet Format.	**(5)**
(D)	Draw and explain DHCP client state Transition Diagram.	**(5)**
(E)	Describe Architectures of WWW.	**(5)**
(F)	How do you Download Compressed Audio/Video using a Web Server and Media Server? Explain.	**(5)**

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(April – 2016)

PAPER - III

DATA

WAREHOUSING

Time: 2 ½ Hours **Total Marks:** 75

N.B.: **(1)** *All Question are Compulsory.*
   (2) *Make Suitable Assumptions Wherever Necessary And State The Assumptions Made.*
   (3) *Answer To The Same Question Must Be Written Together.*
   (4) *Number To The Right Indicates Marks.*
   (5) *Draw Neat Labeled Diagrams Wherever Necessary.*
   (6) *Use of Non – Programmable Calculator is allowed.*

Q.1 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A) State and justify the characteristics of a Data Warehouse with suitable example. **(5)**
(B) Differentiate OLTP and OLAP. **(5)**
(C) Discuss the different types of facts with respect to measures stored in the fact table in a Data Warehouse. **(5)**
(D) Why a dimension is called slowly changing dimension? Explain. **(5)**

Q.2 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A) What is a relationship between OWBSYS and Oracle Warehouse Builder? **(5)**
(B) Solve following: **(5)**
   (i) *Name and define the utility that has to be configured before creating an Oracle Database.*
   (ii) *Draw a neat diagram that illustrates the various component of OWB.*
(C) What is the significance of HS Parameters in the Heterogeneous Service Configuration File? **(5)**
(D) Explain the term module with reference to the design of a DW in Design Center. **(5)**

Q.3 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A) Explain the Relational Implementation of a Dimensional Model – Star Schema. **(5)**
(B) Name and explain the object that are Relational and Dimensional Objects in Oracle Module. **(5)**
(C) Every Dimension has four characteristics that have to be defined in OWB. What are they? **(5)**
(D) Explain the tabs Name, Storage, Attributes, Levels and hierarchies in Editor. The Window of any object that is currently being edited. **(5)**

Q.4 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A) What is ETL? Explain with an example. **(5)**
(B) Explain the data flow operators: **(5)**
   (i) *Aggregator*
   (ii) *Joiner*
   (iii) *Expression*
(C) What is set in the Keys tab in the Table Editor Window in OWB? **(5)**
(D) Explain the Indexes and Partitions tab in the Table Editor. **(5)**

Q.5 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A) Discuss any three transformation operators used in ETL processing. **(5)**
(B) What is the role of a LOOKUP operator in a Mapping? **(5)**
(C) Explain Full and Intermediate Generation Styles. **(5)**
(D) Solve the following: **(5)**
   (i) *Validation will result in one of the three possibilities. What are they?*
   (ii) *Mention the five default operating mode of the mapping.*

[TURN OVER]

Q.6 ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A) What are the different operations that can be performed on a snapshot of an object that is created? **(5)**

(B) What happens if, let's say, for example, a table definition is updated after we have defined it and created a Mapping or Mappings that included it? **(5)**

(C) What is the difference between ROLAP and MOLAP? **(5)**

(D) Illustrate Data Explosion with reference to Data Storage in Data Warehouse. **(5)**

Q.7 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

(A) Explain Snow Flake Schema with an example. **(5)**

(B) The first step required in making use of Oracle Heterogeneous Services used to access a Non-Oracle Database is to create an ODBC Connection. How is this Connection established? **(5)**

(C) Define and explain term Staging with respect to ETL Processing. **(5)**

(D) Differentiate Surrogate Identifier and Business Identifier with suitable examples. **(5)**

(E) The process of building the DW from the model created in the Warehouse Builder involves Deploying and executing. Discuss. **(5)**

(F) Explain the Change Management related Toll - The Metadata Loader. **(5)**

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Question Paper

[CBSGS – 75:25 Pattern]
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PAPER - IV

ELECTIVE

IPR AND

CYBER LAWS

Time: 2 ½ Hours **Total Marks:** 75

N.B.: **(1)** *All Question are Compulsory.*
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   (5) *Draw Neat Labeled Diagrams Wherever Necessary.*
   (6) *Use of Non – Programmable Calculator is allowed.*

Q.1   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A) What is Copyright? Explain with suitable example. (5)
(B) Explain the basic steps of applying for a Patent. (5)
(C) List out the basic principles of the Trademark. (5)
(D) What is Trademark? Explain the role of Trademark and its usefulness in Marketing. (5)

Q.2   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A) Explain the procedure for the Registration of Domain Names. (5)
(B) Explain UK Data Protection Act. (5)
(C) Discuss the Digital Copyright issues. (5)
(D) Write a short note on "WIPO Treaty". (5)

Q.3   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A) Explain the types of Assignment. (5)
(B) What are the rights awarded to a Patentee? (5)
(C) What is a Trademark? What are its Essential Elements? (5)
(D) What are the Rights granted for Registration of a Design? (5)

Q.4   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A) What are the different types of IP Licensing Formats? Explain. (5)
(B) Discuss Technology Licensing. (5)
(C) What are the advantages and disadvantages of IP Licensing? (5)
(D) List out the Criminal Remedies in enforcing IPR. (5)

Q.5   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A) What is a need of Cyber Law and Cyber Security? (5)
(B) What are the roles performed by the Certifying Authorities? Explain. (5)
(C) What is E-Governance? Explain. (5)
(D) Explain Cyber Jurisprudence. (5)

Q.6   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A) What does Chapter 3 of IT Act, 2000 E-Governance Stress upon? (5)
(B) What are the duties of a subscriber of Digital Signature Certificate? (5)
(C) What are the functions of the controller of CA? (5)
(D) What does chapter 4 of IT Act, 2000, "Attribution, Acknowledgement & Dispatch of Electronic Records" cover? (5)

[TURN OVER]

Q.7 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

(A) What are the basic principles of Patent Law?   **(5)**

(B) Explain Trade-related aspects of IP Rights (TRIPS) in India.   **(5)**

(C) What are the defences available in case of Infringement of Patents?   **(5)**

(D) What are general obligations for enforcement of Intellectual Property Rights?   **(5)**

(E) Write the conditions to apply for Digital Signature.   **(5)**

(F) What does a CA Certifying, while issuing the Digital Signature Certificate? Explain.   **(5)**

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PAPER - IV

ELECTIVE

Project

Management

Time: 2 ½ Hours   **Total Marks:** 75

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     (5) *Draw Neat Labeled Diagrams Wherever Necessary.*
     (6) *Use of Non – Programmable Calculator is allowed.*

Q.1   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   What are the factors that can be abstracted with Software Economics? Explain in detail.   **(5)**
(B)   What is customization of component & compare them with Commercial Components?   **(5)**
(C)   How do we partition the Process Perspectives? Explain them in brief.   **(5)**
(D)   Compare the three Generations of Software Development.   **(5)**

Q.2   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   "Management set artifacts associated with process planning & execution" – justify the statement.   **(5)**
(B)   Write a short note on Test Artifacts.   **(5)**
(C)   Explain the Technical Perspective of Software Architecture.   **(5)**
(D)   Why do we call the requirements set the Primary Engineering Content? Explain.   **(5)**

Q.3   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   Write a short note on Realistic Planning.   **(5)**
(B)   How do you classify the Joint Management Reviews? Explain about Minor Milestones in detail.   **(5)**
(C)   Explain the concept of Iteration Workflow in detail.   **(5)**
(D)   How to create a Tailor-Made WBS? Discuss the ways and means.   **(5)**

Q.4   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   Explain about Project Software Standard.   **(5)**
(B)   What are the key points that Software Architecture Team should focus on? Explain their Roles,   **(5)**
Artifacts, and Responsibilities.
(C)   Why is the process to be Automated? Explain the reasons and the three levels of Automation.   **(5)**
(D)   Why are the tools considered as the core components in the Process Automation? Explain.   **(5)**

Q.5   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   Explain the three Management Indicators' metrics in detail.   **(5)**
(B)   Write a short note on Pragmatic Software Metrics.   **(5)**
(C)   Enlist the factors of Tailoring a Software Process Framework. Explain any of the 4 factors in detail.   **(5)**
(D)   Explain about Small Scale and Large Scale Projects.   **(5)**

Q.6   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   Enlist the various principles of Modern Project Management.   **(5)**
(B)   Explain the best practices listed it out by "Airline Software Council".   **(5)**
(C)   Analyze the Future Perspective of Cost Estimation Model.   **(5)**
(D)   Write a short note on the Process of Denouement.   **(5)**

[TURN OVER]

Q.7 **ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

(A) "Late design & integration is one of the biggest drawbacks of Waterfall Model" – Explain the statement. **(5)**

(B) Write a short note on Pragmatic Artifacts. **(5)**

(C) Explain the 2 perspectives through which project plans need to be derived. **(5)**

(D) Explain the nature of Project Team Members and their profiles. **(5)**

(E) Explain the two dimensions of process discriminate with neat diagram. **(5)**

(F) Explain the basic difference between Problem Spaces Vs. Solution Space with respect to Software Cost Model. **(5)**

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PAPER - IV

ELECTIVE

Geographic Information System

Time: 2 ½ Hours   **Total Marks:** 75

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     (5) *Draw Neat Labeled Diagrams Wherever Necessary.*
     (6) *Use of Non – Programmable Calculator is allowed.*

Q.1   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   List various GIS operations. Explain any two of them.   **(5)**
(B)   Convert the following into degrees: **(5)**
    (i) *45o 15' 45"*
    (ii) *1745 rad*
(C)   Explain with suitable example Coverage Data Structure.   **(5)**
(D)   Explain the data structure used in the geodatabase data model.   **(5)**

Q.2   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   List various data sources that can be used to create new geospatial data. Explain any one.   **(5)**
(B)   Explain the Neutral-format data exchange with suitable example.   **(5)**
(C)   Define: **(5)**
    (i) *Digitizing*
    (ii) *Vectorization*
    (iii) *Resampling*
    (iv) *RMS*
    (v) *Scanning*
(D)   Explain Affine transformation.   **(5)**

Q.3   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   What is attribute data in GIS? List and explain different types of the attribute table.   **(5)**
(B)   List different types of database design. Explain any two.   **(5)**
(C)   Write a short note on map production.   **(5)**
(D)   List and explain different types of maps.   **(5)**

Q.4   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   What is descriptive statistics? Explain.   **(5)**
(B)   Explain spatial aggregation.   **(5)**
(C)   What is the output of the following for a statement (slope = 1) AND (NOT(Aspect =3))?   **(5)**
(D)   Explain with suitable example: Spatial Data Query.   **(5)**

Q.5   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   List and explain various overlay operations based on feature type.   **(5)**
(B)   What do you mean by pattern analysis? Explain Nearest Neighbour Analysis.   **(5)**
(C)   What is a local operation? Explain local operation with a single raster.   **(5)**
(D)   Explain the neighbourhood operations with suitable example.   **(5)**

Q.6   **ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

(A)   Explain the Thin-Plate Splines Local Method.   **(5)**
(B)   Explain the Thin-Plate Splines Local Method.   **(5)**
(C)   What is Kriging? Explain Universal Kriging.   **(5)**
(D)   List and explain the elements of Spatial Interpolation.   **(5)**

Q.7   **ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

(A)   Consider the following information on a 30-meter DEM: **(5)**
  • *UTM coordinates in the lower left corner 560635, 4816399.*
  • *UTM coordinates in meters at the upper right corner 570595, 4830380.*
  How many rows and columns does the DEM have?
  What are the UTM coordinates at the center of the cell(row 1, column 1)?
(B)   Write a short note on metadata.   **(5)**
(C)   Explain the different commonly used data classification methods.   **(5)**
(D)   Explain feature selection by spatial relationship data query with suitable example.   **(5)**
(E)   Explain the following map manipulation operations with example: **(5)**
   (i)   *Dissolve*
   (ii) *Append*
(F)   Write a short note on Density Estimation.   **(5)**